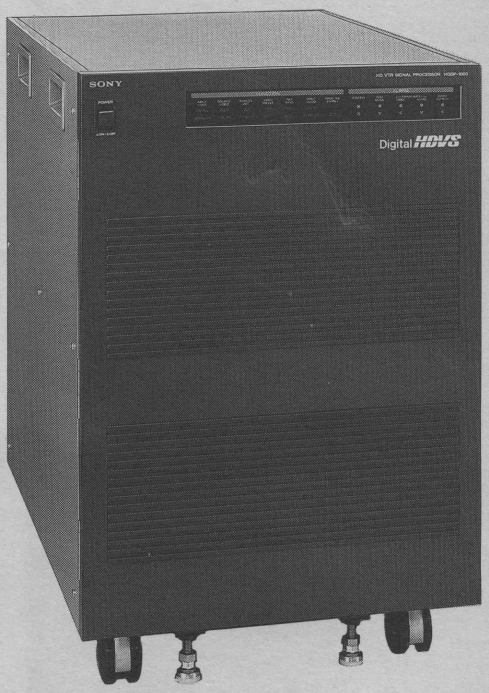
SONY

HD VTR SIGNAL PROCESSOR

HDDP-1000



Digital HDVS

OPERATION MANUAL

1st Edition (Revised 1)

Serial No. 10001 and Higher

WARNING

For the customers in the USA
This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for Class A computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a computing device pursuant to Subpart J of Part 15 of FCC rules.

WARNING: Changing the voltage selector may require the use of a different line cord or attachment plug, or both. To reduce the risk of fire or electric shock, refer servicing to qualified service personnel.

For the customers in Canada
This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

Pour les utilisateurs au Canada
Cet appareil est conforme aux normes Classe A, pour bruits radioélectriques, tel que spécifié dans le Règlement sur le brouillage radioélectrique.

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Section 1. GENERAL

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1-1. Outline

The Sony HDDP-1000 is a signal processor designed to compose the HD (High Definition) digital VTR system in combination with the Sony HDD-1000 HD digital videocorder.
The Sony HD digital VTR system conforms to the "High Definition TV Standards" approved by BTA and SMPTE.

HDDP-1000 in the HD digital VTR system

All the video and audio source equipment can be connected to the HD digital VTR system through the connectors on the rear panel of the HDDP-1000. The HDDP-1000 corrects error and processes the signals for the HDD-1000.

Multiple input/output connectors

Conventional system compatibility

Various types of connectors for both digital and analog signals are provided on the rear panel so that the HD digital VTR system can maintain compatibility with existing equipment.
The digital video inputs/outputs conform to the BTA standards. The digital audio inputs/outputs conform to the AES/EBU format.

RS-232C connector

Provided for future expansion.
This connector is used for connection to an external terminal for user data processing of the HD digital VTR system.

Error correction

Errors in the digital video and audio signals, which can be caused by the tape defect and dust, are corrected by the error correction function to obtain a high-quality playback picture. If the errors cannot be corrected, the error concealment function is activated.
In addition, you can chose the four-channel mode[1)] for digital audio channels to reduce the number of errors to be corrected and to raise the quality of the playback signal.

System status indications

FUNCTION indicators show the current settings of the system and the selected signal.
ALARM indicators show whether the system is operating properly or not.

VTR/signal processor separate system

The tape transport section and the signal processing section are separated for installation convenience and easy maintenance.
Some settings of the HDDP-1000 internal boards are also possible in the menus of the HDD-1000; for example, video and audio input signal selection, and input connector selection.

1) For-channel mode is selected with the menu I71 AUDIO DOUBLE RECORD on the HDD-1000.

1-2. Specifications

General

Power requirements	100 to 120/220 to 240 V AC ±10% selectable, 50/60 Hz
Power consumption	1100 W max.
Operating temperature	10°C to 35°C (50°F to 95°F)
Storage temperature	−20°C to +60°C (−4°F to +140°F)
Humidity	10 to 85% (non-condensing)
Weight	100 kg (220 lb 7 oz), including casters
Dimensions (w/h/d)	424×650×650 mm, (16¾×25⅝×25⅝ inches)

Video

Sampling frequency	74.25 MHz
Quantization	8 bits/sampling
Channel coding	8-8 coding
Video bandwidth	Y: 0 to 27 MHz ±0.5 dB to 30 MHz $^{+0.5}_{-1.5}$ dB P_B, P_R: 0 to 13.5 MHz ±0.5 dB to 15 MHz $^{+0.5}_{-1.5}$ dB
S/N	56 dB
K factor	1 or less (2T pulse)
Tilt	1 or less (horizontal, vertical)
Linearity	1% or less (low frequency)
Channel delay time	3.5 nsec. or less
Input/output return loss	26 dB or more
Input level variable	±2 dB (analog input)
Output level variable	±2 dB (analog output) Digital output level is fixed. Sync phase: +1.5 to −0.5 μsec. (13.5 nsec./step)

Digital audio (DA1 to DA8 CH)

Frequency response	20 Hz to 20 kHz $^{+0.5}_{-1.0}$ dB (at 1 kHz, 4 dBm nominal)
Dynamic range	90 dB or more (at 1 kHz, emphasis ON)
Distortion	0.05% or less (1 kHz, emphasis ON, 0 VU headroom 18 dB)
Wow & flutter	Below measurable limit
Crosstalk	−80 dB or less (between channels, at 1 kHz)
Sampling frequency	48 kHz (synchronized to video)
Emphasis	T_1 = 50 μsec/T_2 = 15 μsec (ON/OFF selectable)
Quantization	16 bits/sampling
Level (analog)	Input: −16 dBm to +10 dBm (4 dBm nominal, 600 Ω/10 kΩ impedance, balanced) Output: 4 dBm, 600 Ω impedance, balanced
Delay (output)	±0.5 frame (to video signal)

Analog audio (cue track)

Frequency response	50 Hz to 20 kHz $^{+1}_{-3}$ dB
S/N ratio	50 dB or more (at operation level)
Distortion	1.2 % or less (0 VU headroom 12 dB)
Wow & flutter	0.2 % or less (0.5 to 200 Hz, NAB, unweighted)
Level	Input: −16 dBm to +16 dBm (600 Ω/10 kΩ impedance, balanced) Microphone input: −60 dBm (600 Ω, balanced) Output: 4 dBm, 600 Ω impedance, balanced

Input/output signal

Video input/output

Analog (BNC)	G/B/R, Y/P_B/P_R input: 1.0 Vp-p ±2 dB
	SYNC input: ±0.3 V ±3 dB
	G/B/R, Y/P_B/P_R output: 0.7 Vp-p(video), ±0.3 V (sync)
	SYNC output: ±0.3 V, 75 Ω, G/B/R or Y/P_B/P_R selectable
Digital (D-SUB 50-pin)	Y: 8 bit parallel (74.25 MHz)
	P_B/P_R: multiplex 8 bit parallel (74.25 MHz), ECL level
	Clock: 74.25 MHz
Monitor output (BNC)	G/B/R, Y/P_B/P_R: 0.7 Vp-p(video), ±0.3 V (sync)
	SYNC: ±0.3 V
Waveform monitor output (BNC)	
	G/B/R, Y/P_B/P_R: 0.7 Vp-p (video), ±0.3 V (sync), 75 Ω
	SYNC: ±0.3 V (input/output video), 0.6 Vp-p (CTL), 0.4 Vp-p (RF envelope), 75 Ω

Audio input

Analog (XLR)	−16 dBm to +16 dBm, 600 Ω/10 kΩ, balanced
Digital (XLR, D-SUB 15-pin)	AES/EBU format

Audio output

Analog (XLR)	+4 dBm nominal, 600 Ω, balanced
Digital (XLR, D-SUB 15-pin)	AES/EBU format

TO VTR

Digital video (D-SUB 50-pin)
Digital audio (D-SUB 50-pin)

Remote control

RS-232C (D-SUB 25-pin)	For RS-232C interface

Supplied accessories

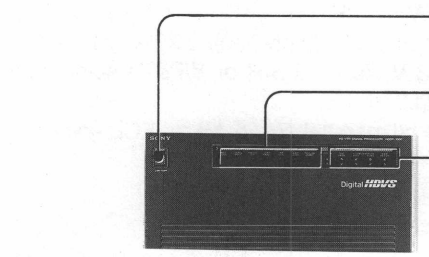
Extension board (1)
VTR-processor connecting cable (3)
Extension coaxial cable 600 mm (8)
Rack mount fittings (1 set)
ANALOG AUDIO IN and OUT labels (1 set)
Operation manual, maintenance manual (1 set)

Design and specifications are subject to change without notice.

1-3. HDDP-1000 Location of Parts

For details of each part, refer to the sub-section of Section 2 given below.

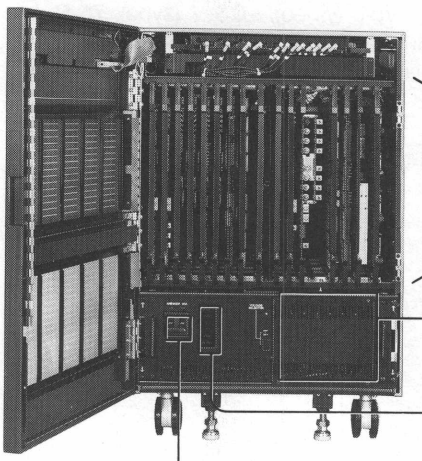
Front



POWER switch
Turns on and off the HDDP-1000.

FUNCTION indicators: 2-2.

ALARM indicators: 2-3.



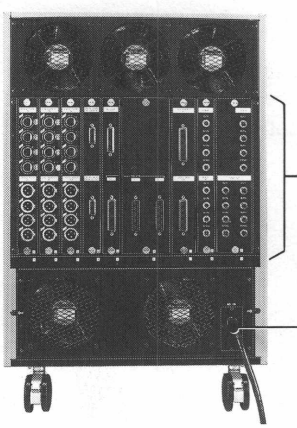
Printed circuit boards: 2-4.

VOLTAGE SELECTOR
See the maintenance manual of the HDDP-1000.

Indicators
Indicate the power condition of each regulator.
When the power block overheats, the ALARM indicator blinks and an alarm sounds simultaneously.

BREAKER (main power cut-off switch)
See "Setting the BREAKER".

Rear



Connectors: 2-1.

AC IN cord
Connect to a correctly rated supply socket.

Setting the BREAKER

When excessive current flows to the HDDP-1000, the breaker cuts off the supply to prevent damage to the unit.
To use the unit again, check the BREAKER switch. If the switch is set at OFF, set the POWER switch to OFF, remedy the problem, and then set the switch to ON.

Note on the BREAKER switch
Normally the BREAKER switch is set to ON and the power to the HDDP-1000 is turned on/off with the POWER switch.
When the HDDP-1000 is not to be used for a long time, set the BREAKER switch to OFF.

Section 2. FUNCTION OF EACH PART

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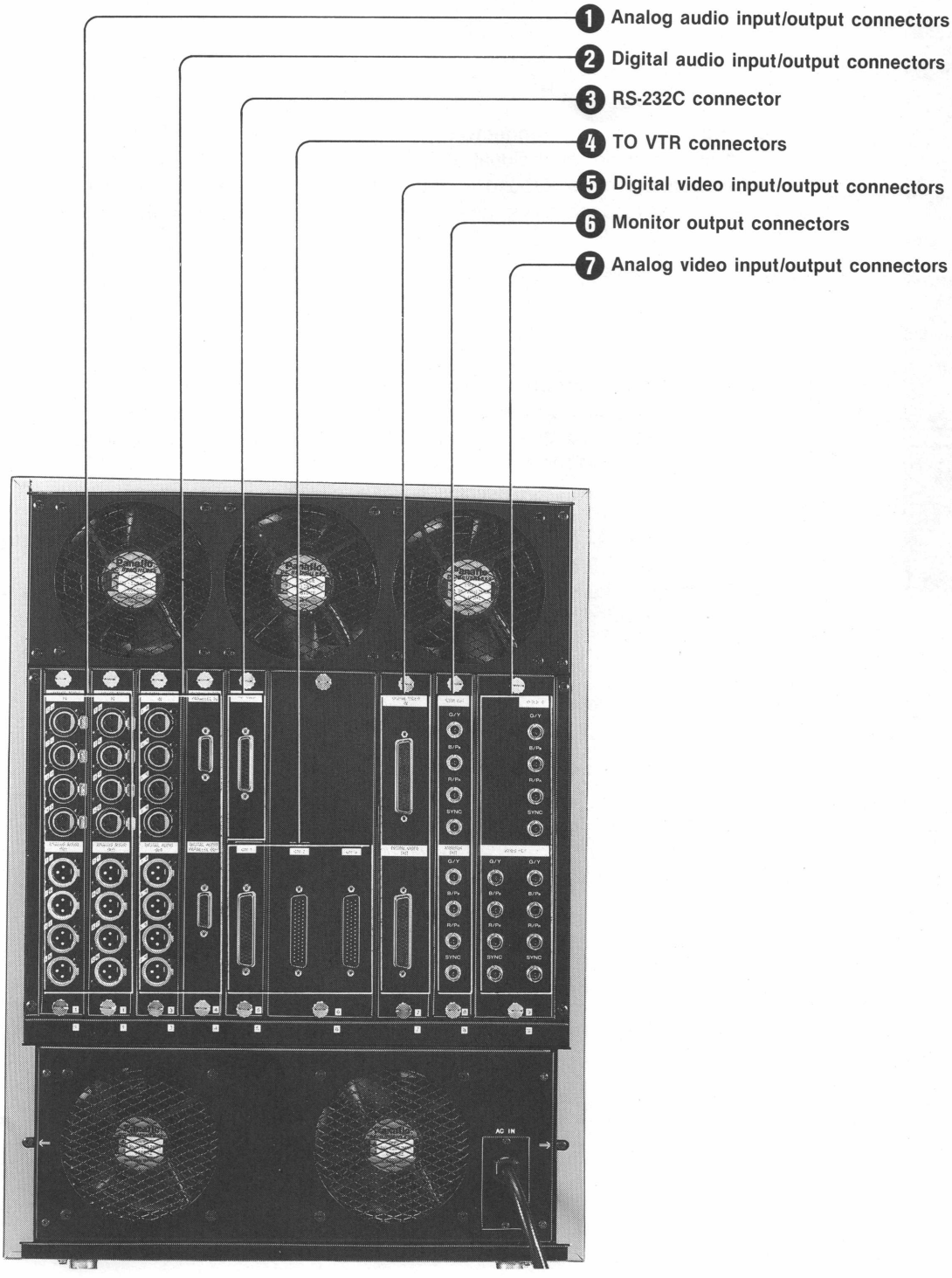
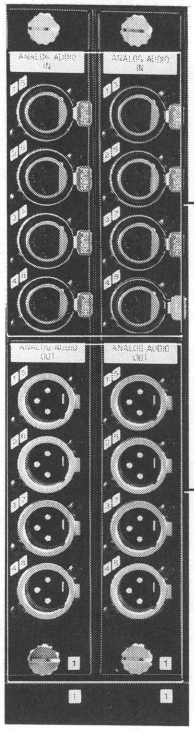
2-1. Connectors

2-1-1. Location and Functions of Connectors


1 Analog audio input/output connectors
2 Digital audio input/output connectors
3 RS-232C connector
4 TO VTR connectors
5 Digital video input/output connectors
6 Monitor output connectors
7 Analog video input/output connectors
AC IN

❶ Analog audio input/output connectors

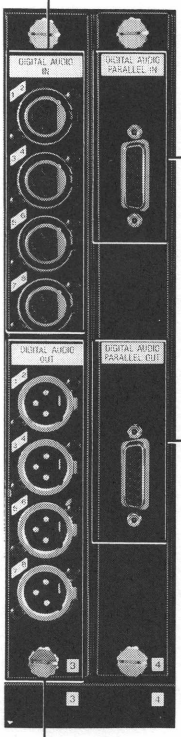


ANALOG AUDIO IN (input) connectors (XLR 3-pin)
Receive an analog audio input signal at the normal level.
The left four connectors correspond to the digital audio channels 1 to 4, and the right four connectors correspond to the digital audio channels 5 to 8 from the top.

ANALOG AUDIO OUT (output) connectors (XLR 3-pin)
Output the digital-to-analog converted signal of the digital audio channels.
The left four connectors correspond to the digital audio channels 1 to 4, and the right four connectors correspond to the digital audio channels 5 to 8 from the top.

Note
When you select the four-channel mode for digital audio channels, the signals input to the channels 5 through 8 are not recorded. In this case, playback signals from the channels 5 through 8 are the same as those from the channels 1 through 4. The four-channel mode is selected with the menu I71 AUDIO DOUBLE RECORD on the HDD-1000.

❷ Digital audio input/output connectors



DIGITAL AUDIO IN (input) connectors (XLR 3-pin)
Receive an AES/EBU format digital audio signal for the digital audio channels. A connector receives the signal for two channels.

DIGITAL AUDIO PARALLEL IN (input) connector (D-SUB 15-pin)
Receives an eight-channel AES/EBU format digital audio signal.
When the signal is input to the DIGITAL AUDIO IN connector, the signal of the corresponding channels (pins) of this connector are ignored.

DIGITAL AUDIO PARALLEL OUT (output) connector (D-SUB 15-pin)
Outputs an eight-channel digital audio signal.

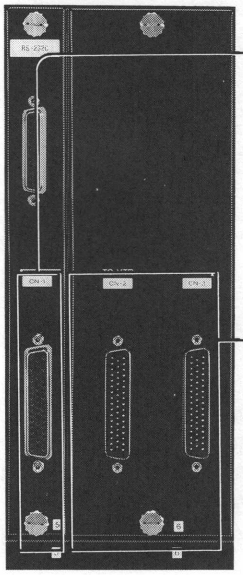
DIGITAL AUDIO OUT (output) connectors (XLR 3-pin)
Output digital audio signals. A connector outputs the signal from two channels.

Note
When you select the four-channel mode for digital audio channels, the signals input to the channels 5 through 8 are not recorded. In this case, playback signals from the channels 5 through 8 are the same as those from the channels 1 through 4. The four-channel mode is selected with the menu I71 AUDIO DOUBLE RECORD on the HDD-1000.

❸ RS-232C connector

RS-232C connector (D-SUB 25-pin)
For future use.

❹ TO VTR connectors



Use the supplied VTR-processor connecting cable.

CN-1 connector (D-SUB 50-pin)
Connects to the CN-1 connector of the TO PROCESSOR connectors on the HDD-1000 rear panel to send/receive digital audio signals to/from the HDD-1000.

CN-2, CN-3 connectors (D-SUB 50-pin)
Connect to the TO PROCESSOR connectors on the HDD-1000 respectively to send/receive digital video signals to/from the HDD-1000.

❺ Digital video input/output connectors

DIGITAL VIDEO IN (input) connector (D-SUB 50-pin)
Receives the BTA standard digital video signal.

DIGITAL VIDEO OUT (output) connector (D-SUB 50-pin)
Outputs the BTA standard digital video signal.

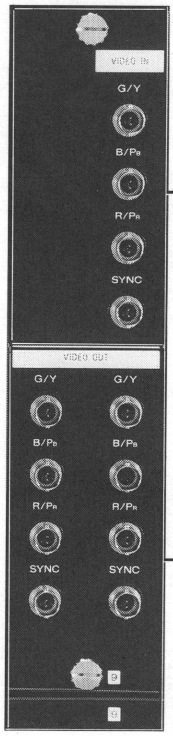
❻ Monitor output connectors

WFM OUT (waveform monitor output) connectors G/Y, B/P_B, R/P_R SYNC (BNC type)
Output the component analog video signals for waveform monitoring.
You can select the signal to be output from the input video signal, output video signal, CTL signal, or the RF envelope signal in Menu S03 WFM SELECT of the HDD-1000.
When the analog input/output video signal is selected, either G/B/R signal or Y/P_B/P_R signal selected in Menu I81 INPUT G.B.R/Y.PB.PR or Menu I83 OUTPUT G.B.R/Y.PB.PR is output. When the CTL or the RF envelope signal is selected, the same signals are output from these connectors except the SYNC connector.

Note
The digital input signal cannot be monitored.

MONITOR OUT (output) connectors G/Y, B/P_B, R/P_R, SYNC (BNC type)
Output the component analog video signals for picture monitoring. You can select G.B.R or Y.PB.PR in Menu I83 OUTPUT G.B.R/Y.PB.PR.
These connectors usually output the signal selected in Menu S02 PICTURE MONITOR. While you are pressing the INPUT button on the HDD-1000, the signal input to the VIDEO IN connector (the EE signal or the input signal) is output from here. Select either EE or INPUT in Menu I04 INPUT CHECK MODE.
You can display the time data superimposed on the monitor display when MONITOR is selected in Menu S59 MIXED CHARA OUTPUT.

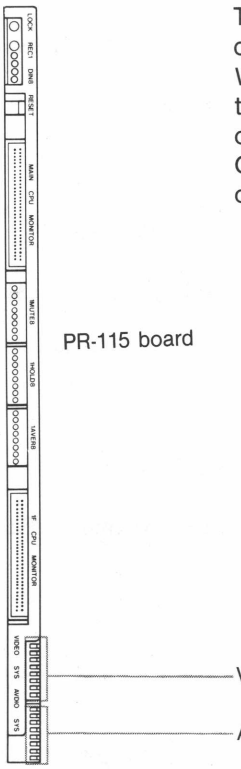
❼ Analog video input/output connectors



VIDEO IN (input) connectors G/Y, B/P_B, R/P_R, SYNC (BNC type)
Accept the component analog video signals: G/B/R/sync and Y/P_B/P_R/sync signals. Select either signal in Menu I81 INPUT G.B.R/Y.PB.PR.
Inputting the reference signal to the SYNC connector is not necessary when you select the input video signal for the reference.

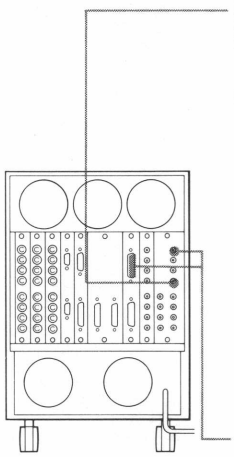
VIDEO OUT (output) 1/2 connectors G/Y, B/P_B, R/P_R, SYNC (BNC type)
Output the component analog video signals: G/B/R/sync or Y/P_B/P_R/sync signal. Select either signal in Menu I83 OUTPUT G.B.R/Y.PB.PR.
The two sets of the connectors output the same signals.

2-1-2. Input/output Signal Selection



The input/output connector for each signal is selected either by setting a board switch of the HDDP-1000 or by menu operation as follows.
When the PROC SW ENABLE indicator on the front panel of the HDDP-1000 is ON, the board switches are effective. And when the indicator is OFF, the menu operation on the HDD-1000 is effective.
ON/OFF setting depends on the settings of the VIDEO SYS and AUDIO SYS switches on the PR-115 board.

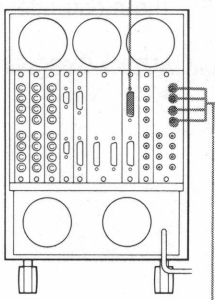
Reference signal



External reference signal
By the switch: Set both the Bit 7 of the VIDEO SYS switch and the Bit 7 of the AUDIO SYS switch to ON.
By the menu: Set Menu S12 COMMON REF SELECT and Menu I82 PROC PB REF SELECT so that the external reference signal will be selected. See the operation manual of the HDD-1000 for details.

Input video signal
By the switch: Set the Bit 7 of the VIDEO SYS switch to ON, and the Bit 7 of the AUDIO SYS switch to OFF.
By the menu: Set Menu S12 COMMON REF SELECT and Menu I82 PROC PB REF SELECT so that the input video signal will be selected. See the operation manual of the HDD-1000 for details.

Input video signal

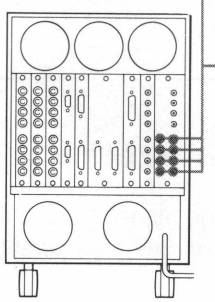


Digital
By the switch: Set both the Bit 7 of the VIDEO SYS switch and the Bit 8 of the AUDIO SYS switch to ON.
By the menu: Select DIGITAL in Menu I80 INPUT ANALOG/DIGITAL.

Analog (G/B/R)
By the switch: Set the Bit 7 of the VIDEO SYS switch to ON, the Bit 5 to OFF, and the Bit 8 of the AUDIO SYS switch to OFF.
By the menu: Select ANALOG in Menu I80 INPUT ANALOG/DIGITAL, and G.B.R in Menu I81 INPUT G.B.R/Y.PB.PR

Analog ($Y/P_B/P_R$)
By the switch: Set both the Bit 7 and the Bit 5 of the VIDEO SYS switch to ON, and the Bit 8 of the AUDIO SYS switch to OFF.
By the menu: Select ANALOG in Menu I80 INPUT ANALOG/DIGITAL, and Y.PB.PR in Menu I81 INPUT G.B.R/Y.PB.PR.

Analog output video signal



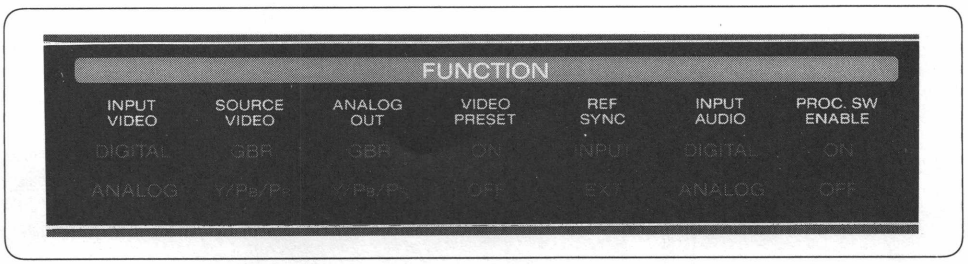
G/B/R
By the switch: Set the Bit 7 of the VIDEO SYS switch to ON, and the Bit 6 to OFF.
By the menu: Select G.B.R in Menu I83 OUTPUT G.B.R/Y.PB.PR.

$Y/P_B/P_R$
By the switch: Set both the Bit 7 and the Bit 6 of the VIDEO SYS switch to ON.
By the menu: Select Y.PB.PR in Menu I83 OUTPUT G.B.R/Y.PB.PR.

2-2. FUNCTION Indicators

These indicators indicate the selected input/output signals and system settings.

HDDP-1000 front panel



INPUT VIDEO: DIGITAL, ANALOG
Indicates which video input signal is selected: digital or analog.

SOURCE VIDEO: GBR, Y/P_B/P_R
When the analog video input signal is selected, indicates whether it is a GBR or a Y/P_B/P_R signal.
When digital video input signal is selected, both the indicators are off.

ANALOG OUT: GBR, Y/P_B/P_R
Indicates which analog output video signal is selected: GBR or Y/P_B/P_R.

VIDEO PRESET: ON, OFF
Indicates whether or not all the video levels are reset to the factory preset ones. It will be OFF if any of the video levels is not set to the factory presetting.

REF SYNC: INPUT, EXT
Indicates which reference signal is selected for the video signal playback in the processor: input video or external.
When digital video input signal is selected as the reference signal, both the indicators light. When the selected reference signal is not input, its indicator blinks.

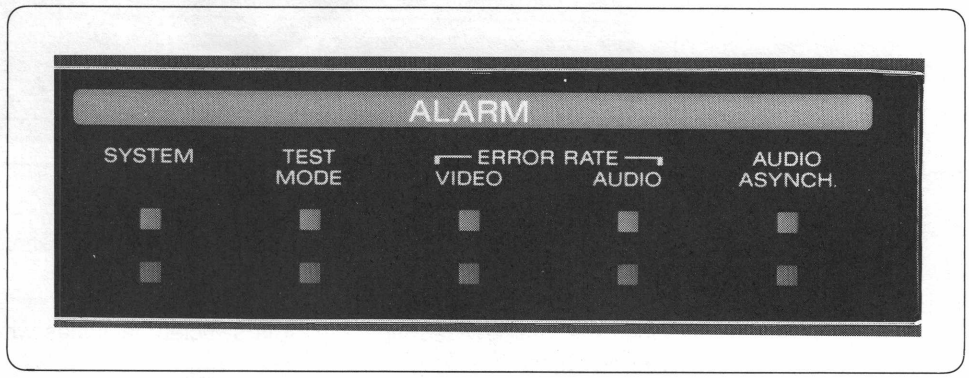
INPUT AUDIO: DIGITAL, ANALOG
Indicates which audio input signal is selected: analog or digital.
Only when the analog audio signal is selected for all the audio channels, ANALOG lights. When digital audio signal is selected for only one channel, DIGITAL lights.

PROC SW ENABLE: ON, OFF
For the settings made with either the HDDP-1000 or the HDD-1000, indicates whether the board switch setting is effective (ON) or not (OFF).
When ON lights, the board switches are effective. And when OFF lights, the menu operation on the HDD-1000 is effective. (The default condition of the indicator is OFF.)
You can change the ON and OFF by the switches on the PR-115 board.

2-3. ALARM Indicators

The ALARM indicators warn of incorrect settings and malfunctions of the HD digital VTR system.
The red indicator lights when an error occurs. When the system is operating normally, the green indicators are lit.

HDDP-1000 front panel



The red indicators light in the following situations.

SYSTEM
- Communication error between the HDDP-1000 and HDD-1000
- Communication error among boards in the HDDP-1000
- Read/write error of the memory around the CPU
- Overheating in the power unit of the HDDP-1000. In this case, the red indicator blinks and an alarm sounds simultaneously.
- An error detected during diagnosis program which is executed after turning the power on

TEST MODE
- The Bit 7 and 8 of the VIDEO SYS switch on the PR-115 board are set to ON.
- The NORM/TEST switch on the DEC-41 board is not set to zero, or the switch(es) on the CI-05 board, the SG-151 board, and/or the ADA-12 board is(are) set for testing. (For details, see the maintenance manual.)

Normally, green TEST MODE indicator must be on.

ERROR RATE VIDEO
The error rate of the video data exceeds the allowable range, so the data cannot be used.
When the red ERROR RATE indicator is lit during playback, first adjust the tracking with the TRACKING control on the HDD-1000 front panel.

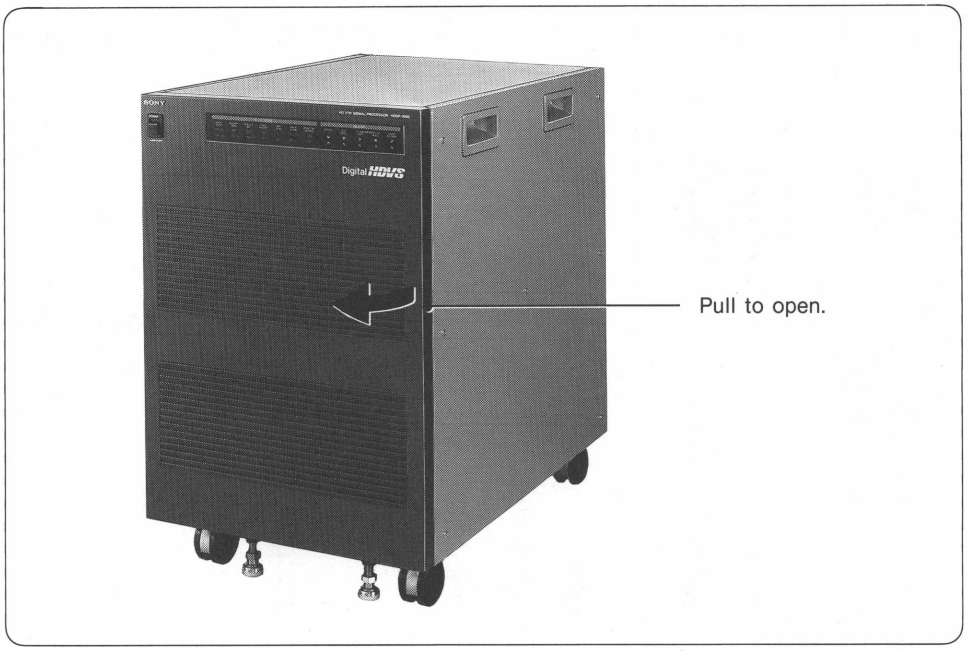
ERROR RATE AUDIO
The error rate of the audio data exceeds the allowable range, so the data cannot be used.
The audio might be muted.

AUDIO ASYNCH
The audio input signals are not synchronized with the video signal, or its sampling frequency is not 48 kHz.

2-4. Printed Circuit Boards

The printed circuit boards are installed inside the HDDP-1000 front door. To change the switch setting or to check the indicators on the boards, open the front door.

To open the front door



Precautions to board insertion and extraction

Do not extract the boards factory installed. If it is necessary to remove or re-insert a board, follow these precautions:

- Be sure to turn off the power before insertion or extraction of the board.
- Insert the board into a slot so that the number on the board coincides with the designated slot number located at the top of the unit (1 to 16 numbered in order from left to right and the ADA-12 board is located above them.)
  If the power is turned on with a board installed in the wrong slot, damage to the board might result.

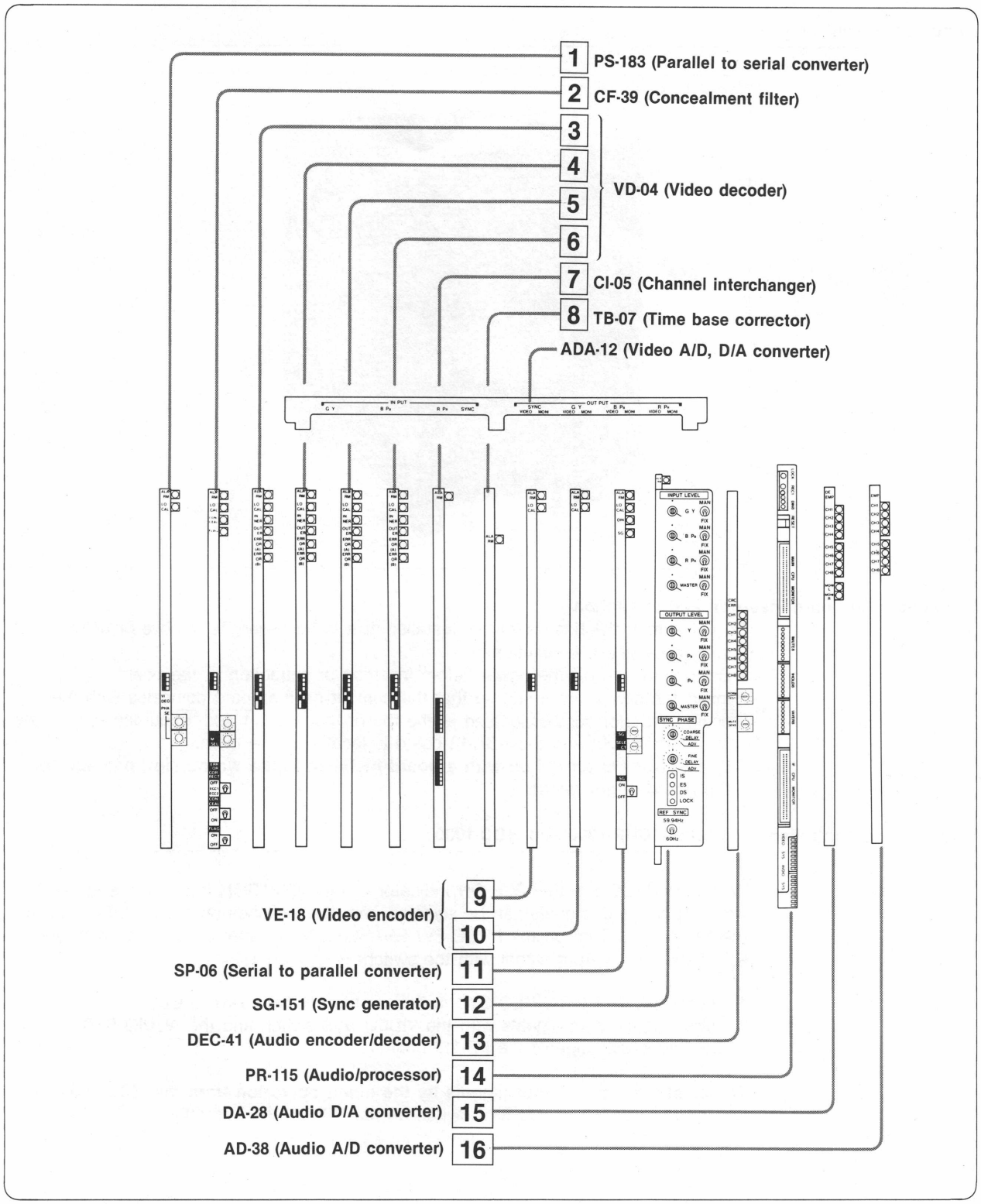
Setting to be controlled from both HDDP-1000 and HDD-1000

When the PROC SW ENABLE ON indicator of the FUNCTION indicators is lit, the video input/output signals can be selected from the switches on the PR-115 board in the HDDP-1000. Turn on the PROC SW ENABLE ON indicator as follows, when you select the input/output signal with the switches.

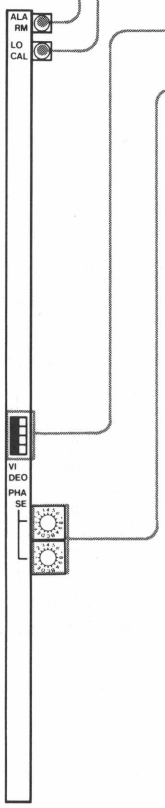
1 Set the Bit 7 of the VIDEO SYS switch on the PR-115 board to ON.
2 Select input/output signals with the VIDEO SYS switch and the AUDIO SYS switch. (See the explanation of the PR-115 board.)

To select the input/output signals by the menu operation from the HDD-1000
Set the Bit 7 of the VIDEO SYS switch on the PR-115 board to OFF.

2-4-1. Board Assignment



PS-183 board 1 (Parallel to serial converter)



ALARM indicator (red)
Lights when an error of the circuit on the board is detected.

LOCAL indicator (green)
Lights when the switches on this board are enabled. Using the VIDEO SYS switch on the PR-115 board makes the switches enabled or disabled.

(For service personnel only)

VIDEO PHASE switches
Adjust the amount of advance/delay of the analog output video signal phase to the reference signal phase.
Adjustable range is −32 samples to +31 samples (13.5 nsec./sample and in total, −431 nsec. to +418 nsec.).
For adjustment, set the number of samples in hexadecimal notation with the switches as shown in the table below. The upper switch is for the higher digit, and the lower switch for the lower digit. Normally set these switches to "00".

Number of samples	Settings
0 (ref. phase)	00
+1 to +30	01 to 1E or 80 to 9E
+31	1F–3F or 9F–BF (Any setting in this range.)
−1 to −31	FF to E1 or 7F to 61
−32	E0–C0 or 60–40 (Any setting in this range.)

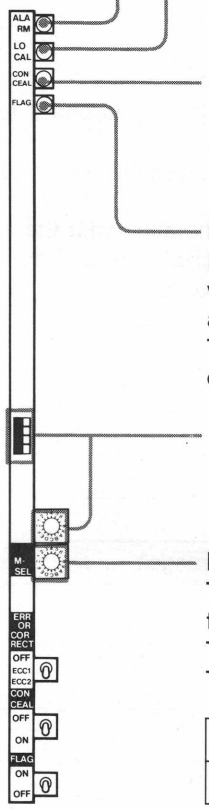
Example: To adjust the amount of delay by 20 samples
Set the switches to "14".

Set the upper switch to "1".

Set the lower switch to "4".

The code for the pedestal level will fill in the part where the data is lost as a result of adjusting the video phase by these switches.

CF-39 board 2 (Concealment filter)



ALARM indicator (red)
Lights when an error of the circuit on the board is detected.

LOCAL indicator (green)
Lights when the switches on this board are enabled. Using the VIDEO SYS switch on the PR-115 board makes the switches enabled or disabled.

CONCEAL (concealment) indicator (green)
Lights while the circuit for error concealment is active.

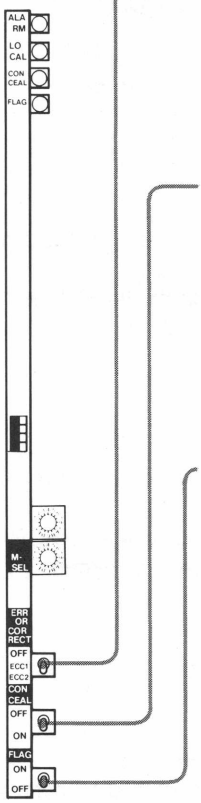
FLAG (error flag) indicator (yellow)
Lights when the picture for error flag monitoring is output from the digital/analog video output connectors and the monitor output connectors. The error can be seen as a white dot on the monitor screen.
To select either the picture for error flag monitoring or the normal picture to be output, use the FLAG switch on this board.

(For service personnel only)

M-SEL (error flag monitor select) switch
To monitor the normal picture mixed with the picture for error flag monitoring from the designated video head, selects the video head to be used for error flag monitoring. The mixed picture is output from only the monitor connectors.
This switch is set to "0" at the factory.

Video head	1	2	3	4	5	6	7	8	All
Setting	1	2	3	4	5	6	7	8	One of 9 to F or 0

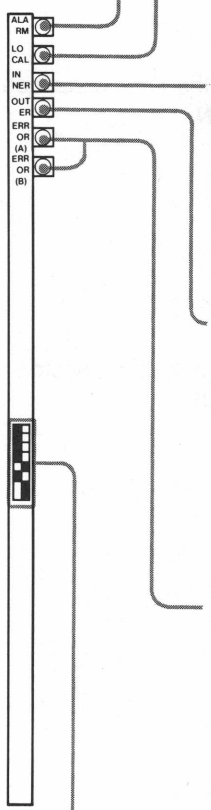
ERROR CORRECT (error correction circuits) switch
Selects the ON/OFF setting of error correction circuits. Normally, set this switch to ECC2.
OFF: Both the inner and the outer correction circuits are OFF (only detecting the error).
ECC1: Only the inner correction circuit is ON, and the outer correction circuit is OFF (only detecting the error).
ECC2: Both the inner correction circuit and the outer correction circuit are ON.



CONCEAL (concealment) switch
Selects whether the errors, which could not be corrected by the error correction circuits, are concealed or not. Normally, set this switch to ON.
ON: The errors are concealed.
OFF: The errors are not concealed.

FLAG (error flag) switch
Selects the video signal output from the digital/analog video output connectors and the monitor output connectors. Normally, set this switch to OFF.
ON: The picture for error flag monitoring is output.
OFF: The normal picture is output.

VD-04 boards 3, 4, 5, 6 (Video decoder)



ALARM indicator (red)
Lights when an error of the circuit on the board is detected.

LOCAL indicator (green)
Lights when the switches on this board are enabled. Using the VIDEO SYS switch on the PR-115 board makes the switches enabled or disabled.

INNER (inner correction) indicator (green)
Lights while the inner correction circuit is active. It does not light when the circuit is only detecting the error.
Use Menu T08 INNER CORRECTION ON/OFF of the HDD-1000 or the ERROR CORRECT switch on the CF-39 board to switch the inner correction circuit ON or OFF.

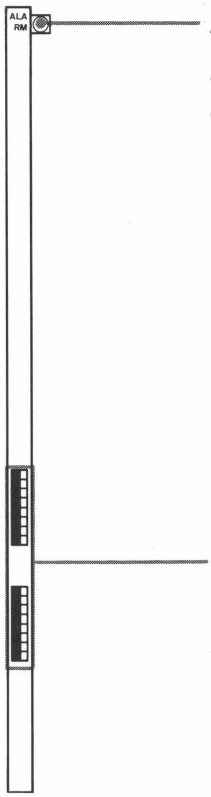
OUTER (outer correction) indicator (green)
Lights when the outer correction circuit is active. It does not light when the circuit is only detecting the error.
Use Menu T09 OUTER CORRECTION ON/OFF of the HDD-1000 or the ERROR CORRECT switch on the CF-39 board to switch the outer correction circuit ON or OFF.

ERROR (A), (B) indicators (yellow)
Light when the error of the signals from the following video heads could not be corrected and is concealed. The indicators on each board correspond to each video head as listed below.

Board	6	6	5	5	4	4	3	3
Indicator	(A)	(B)	(A)	(B)	(A)	(B)	(A)	(B)
Video head	head 1	head 2	head 3	head 4	head 5	head 6	head 7	head 8

(For service personnel only)

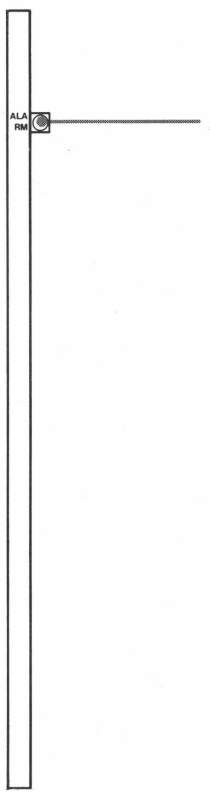
CI-05 board 7 (Channel interchanger)



ALARM indicator (red)
Lights when an error of the circuit on the board is detected, or when the switches for the service personnel on this board are enabled. See the maintenance manual for details.

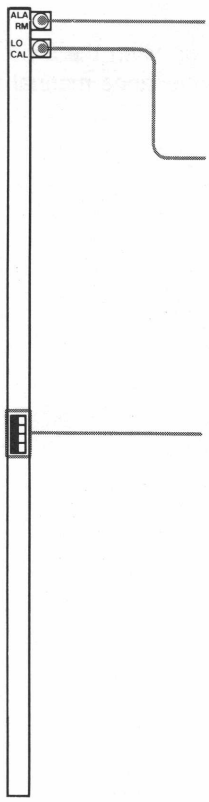
(For service personnel only)

TB-07 board 8 (Time base corrector)



ALARM indicator (red)
Lights when an error of the circuit on the board is detected.

VE-18 boards 9, 10 (Video encoder)



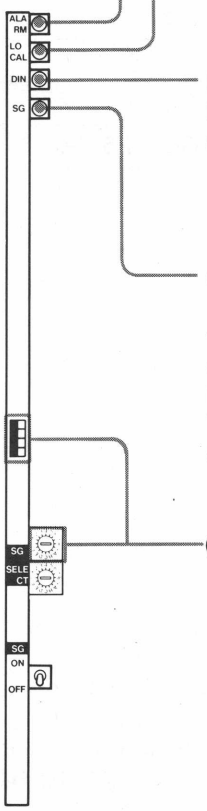
ALARM indicator (red)
Lights when an error of the circuit on the board is detected.

LOCAL indicator (green)
Lights when the switches for the service personnel on this board are enabled. Using the VIDEO SYS switch on the PR-115 board makes the switches enabled or disabled.

(For service personnel only)

ALARM indicator (red)
Lights when an error of the circuit on the board is detected.

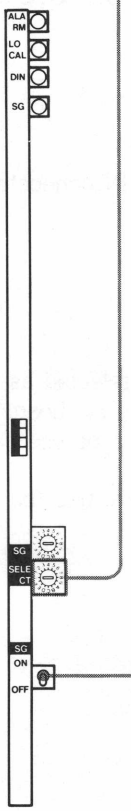
LOCAL indicator (green)
Lights when the switches on this board are enabled. Using the VIDEO SYS switch on the PR-115 board makes the switches enabled or disabled.



DIN (digital input) indicator (green)
Lights when the digital video signal input to the DIGITAL VIDEO IN connector is selected as the input video signal.

SG (signal generator) indicator (green)
Lights when the test signal from the internal signal generator is selected as the input video signal. Use Menu T20 VIDEO TEST SG or the SG switch on this board to select either the external video signal or the internally generated signal to be used as the input signal.
The internal signal generator can generate six kinds of test signals. Use the SG SELECT switch on this board to select one of them.

(For service personnel only)



SG (signal generator) SELECT switch

Select the signal to be generated by the internal signal generator from the following six signals. Use the SG switch on this board to select whether the signal generated by the internal signal generator will be used as an input signal or not. This switch is set to "0" at the factory.

Signal	Setting
Composite signal (CB, MB, Pulse & bar, 10-step linearity)	0 or 8
CB (Color bar)	1 or 9
MB (Multi burst)	2 or A
10-step linearity	3 or B
Pulse & bar	4 or C
BB (Black burst)	One of 5–7 or D–F

SG switch

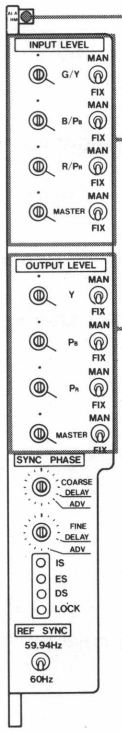
Selects either the input signal from the digital/analog input connectors or the internally generated signal to be used. Normally, set this switch to OFF.

ON: The test signal generated by the internal signal generator is used. You can select the test signal from the six kinds by the SG SELECT switch.

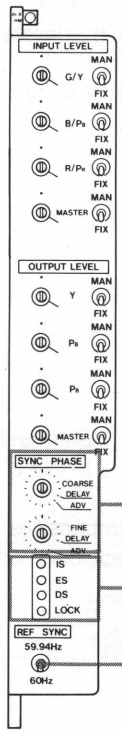
OFF: The signal input from the digital/analog input connectors is used. Use the AUDIO SYS switch on the PR-115 board to select either digital or analog signal to be used.

ALARM indicator (red)
Lights when an error of the circuit on the board is detected, or when the switches for the service personnel on this board are enabled. See the maintenance manual for details.

INPUT LEVEL G/Y, B/P_B, R/P_R, MASTER switches and controls
Set the levels of the analog input video signals. You can set the G/Y signal level, B/P_B signal level, and R/P_R signal level respectively, and you can also set the levels of all the signals together by using the MASTER switch and the control.
Use the VIDEO SYS switch on the PR-115 board to select either G/B/R signal or Y/P_B/P_R signal.
FIX: The input signal level is set to the preset condition.
MAN (manual): The input signal level is adjusted with the control.



OUTPUT LEVEL Y, P_B, P_R, MASTER switches and controls
Set the levels of the analog output video signals. You can set the Y signal level, P_B signal level, and P_R signal level respectively, and you can also set the levels of all the signals together by using the MASTER switch and the control.
When the selected analog video output signal is G/B/R signal, it is impossible to set the level of each component independently. However, the level of each component (G/B/R) depends on the settings of the switches and controls.
FIX: The output signal level is set to the preset condition.
MAN (manual): The output signal level is adjusted with the control.



SYNC PHASE switch

Adjust the amount of advance/delay of the sync phase of the output video signal. To adjust the delay, turn the control clockwise. (During adjustment, the picture may shift.) Adjustable range is -0.5 μsec. to $+1.5$ μsec. The upper switch is for coarse adjustment (approx. 160 nsec./step), and the lower switch for fine adjustment (approx. 13.5 nsec./step). To adjust the sync phase to the preset condition, align the upper switch to the thick line and turn the lower switch. You can adjust the sync phase within ± 7 nsec with respect to the reference signal.

Mode indicators

The four indicators light in the following cases respectively.

IS (yellow)

Lights when the analog sync signal is input to the VIDEO IN G/Y connector.

ES (yellow)

Lights when the external reference signal is input to the VIDEO IN SYNC connector.

DS (yellow)

Lights when the digital sync signal is input to the DIGITAL VIDEO IN connector.

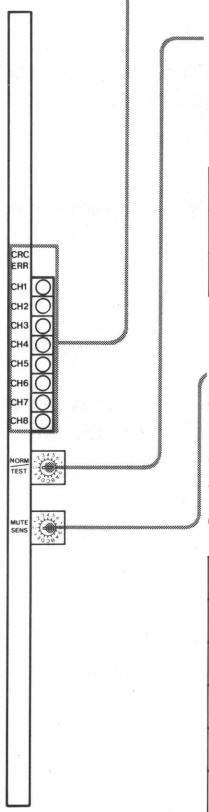
LOCK (green)

Lights when the internal signal generator are locked to the selected analog reference signal.

REF SYNC (reference sync frequency select) switch

Selects either 59.94 Hz or 60 Hz according to the vertical frequency of the reference signal. You cannot set the VTR to the REC mode when 59.94 Hz is selected.

CRC ERR (CRCC error) CH1–CH8 indicators (red)
Light for a CRCC error detected in the played digital audio data. The digital audio data are divided into blocks (0.2 msec. a block) for error detection. The indicators light for about 6 msec. if only one block has an error, because 0.2 msec. is too short to notice.

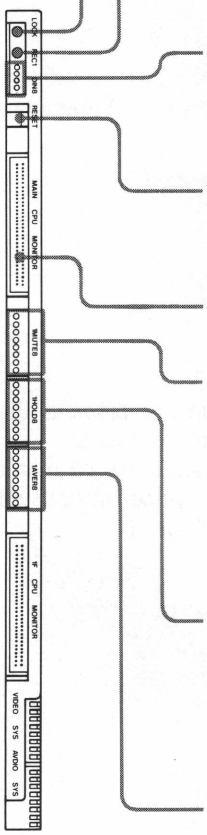


NORM/TEST (normal/test select) switch
Selects which signal, modulated audio signal or RF test signal, is selected for recording on the digital audio tracks. Normally, set this switch to "0" (modulated audio signal).

Signal	Settings
Modulated audio signal	0
Test signal	One of 1 to F

MUTE SENS (mute sense) switch
Sets the number of samples, which could not be corrected, in one block of the de-interleaved digital audio playback data at which the audio will be muted.
One block has six odd samples and six even samples. The audio will be muted when the number of uncorrected samples exceeds the designated number in both odd and even samples simultaneously. Normally, set this switch to "3" or "B".

Number of uncorrected samples	Settings
2 samples	0–2 or 8–A
3 samples	3 or B
4 samples	4 or C
5 samples	5 or D
6 samples	6–7 or E–F



LOCK indicator (green)
Lights when the audio system clock is locked to the video sync signal.

REC (recording) indicator (red)
Lights during audio recording.

DIN (digital audio input) indicators (green)
Light when an AES/EBU format digital audio signal is input. The four indicators correspond to the channels 1/2, 3/4, 5/6, 7/8, from the top, respectively.

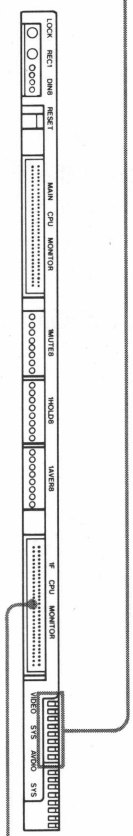
RESET switch
Resets the HDDP-1000. Use this switch when the HD digital VTR system cannot operate normally.

(For service personnel only)

MUTE (muting) indicators (red)
Light when the audio is muted due to excessive uncorrected errors, or when the system requires audio muting. The eight indicators correspond to the digital audio channels 1 to 8, from the top, respectively.

HOLD indicators (yellow)
Light when the uncorrected error data are replaced by the preceding correct data. The eight indicators correspond to the digital audio channels 1 to 8, from the top, respectively.

AVER (average) indicators (green)
Light when the uncorrected error data are concealed through average value interpolation. The eight indicators correspond to the digital audio channels 1 to 8, from the top, respectively.



VIDEO SYS (video system) switch

An eight-bit DIP switch for selection on video signal.
Respective bits correspond to the Bit 1 to Bit 8, from the top, and are used to select different items.

Bit 1 to Bit 3: For service personnel only

Bit 4: Selects measures of the video when the communication between the HDD-1000 and the HDDP-1000 is interrupted.
ON: EE mode
OFF: Keeps the mode at that time.

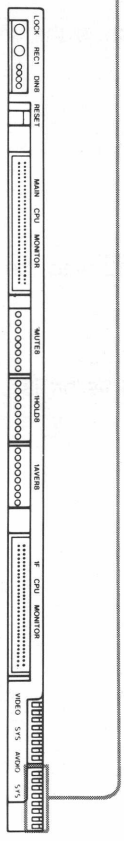
Bit 5: Selects the video input signal in the local mode. (This function is the same as that of Menu I81 INPUT G.B.R/Y.PB.PR of HDD-1000)
ON: Y/P_B/P_R signal
OFF: GBR signal

Bit 6: Selects the video output signal in the local mode. (This function is the same as that of Menu I83 OUTPUT G.B.R/Y.PB.PR)
ON: Y/P_B/P_R signal
OFF: GBR signal

Bit 7: Selects either the remote or local mode of the video (1 to 12 and the ADA-12) boards.
ON: Local mode
OFF: Remote mode

Bit 8: Selects either the remote or local mode of the CI-05 board. (This bit is ineffective when the bit 7 is set to OFF.)
ON: Local mode
OFF: Remote mode

(For service personnel only)



AUDIO SYS (audio system) switch

An eight-bit DIP switch for selection on audio signal.

Respective bits correspond to the Bit 1 to Bit 8, from the top, and are used to select different items.

Bit 1: Selects whether the control of the audio (13 to 16) boards from the HDD-1000 is inhibited or permitted.
Set this bit to OFF, normally.
ON: Control is inhibited.
OFF: Control is permitted.

Bit 2: Selects whether the audio recording is inhibited or permitted.
Set this bit to OFF, normally.
ON: Audio recording is inhibited.
OFF: Audio recording is permitted.

Bit 3 to Bit 6: For service personnel only. Set these bits to OFF, normally.

Bit 7: Selects the video reference signal in local mode. (This function is the same as that of Menu S12 COMMON REF SELECT of the HDD-1000. This bit is ineffective when the bit 7 of the VIDEO SYS switch is set to OFF.)
ON: External reference signal
OFF: Input video signal

Bit 8: Selects the input video signal in local mode. (This function is the same as that of Menu I80 INPUT ANALOG/DIGITAL. This bit is ineffective when the bit 7 of the VIDEO SYS switch is set to OFF.)
ON: Digital signal
OFF: Analog signal

DA-28 board 15 (Audio D/A converter)

DE EMP (de-emphasis) CH1—CH8, MONI (monitor) L/R indicators (yellow)
Light when the de-emphasis circuit for the analog audio output signal is activated. The 10 indicators correspond to the digital audio channels 1 to 8, the monitor output signal L channel, and the monitor output signal R channel from the top.

AD-38 board 16 (Audio A/D converter)

EMP (emphasis) CH1—CH8 indicators (yellow)
Light when the emphasis circuit for the analog audio input signal is activated. The eight indicators correspond to the digital audio channels 1 to 8 from the top.

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